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JAN. 10-58

ELECTRICAL QUIZ SHEET

11/34

1. IF THE CAPACITY IN A PARALLEL TUNED L. C. CIRCUIT IS DOUBLED, THE RESONANT FREQUENCY IS:

A. DOUBLED
[✓ B.] HALVED
X C. ✓ MULTIPLIED BY .707
D. MULTIPLIED BY 1.414
E. NONE OF THE ABOVE

2. THE TURNS RATIO OF A TRANSFORMER RATED AT 5000 OHMS TO 50 OHM LOAD IS:

X A. 10:1
[✓ B.] 100:1
C. 10,000:1
D. 50:1
E. NONE OF THE ABOVE

$\frac{Z_P}{Z_S} = \frac{N_P^2}{N_S^2}$

3. A BLOCKING OSCILLATOR GENERATES:

A. A SQUARE WAVE
B. A SINE WAVE
X C. ✓ A PULSE WAVE
[✓ D.] A SAWTOOTH WAVE
E. NONE OF THE ABOVE

4. IN A THYRATRON THE GRID CONTROLS THE SPACE CURRENT:

A. DIRECTLY PROPORTIONAL TO THE GRID VOLTAGE
B. DIRECTLY PROPORTIONAL TO THE PLATE VOLTAGE
X [✓ C.] INVERSELY PROPORTIONAL TO THE GRID VOLTAGE
D. ✓ NONE OF THE ABOVE

5. WHICH OF THE FOLLOWING ACTIONS HAS THE GREATEST EFFECT IN INCREASING CUT-OFF VOLTAGE (MORE NEGATIVE) OF A TETRODE.

A. ✓ INCREASING SCREEN VOLTAGE
B. DECREASING SCREEN VOLTAGE
X [✓ C.] INCREASING PLATE VOLTAGE
D. DECREASING PLATE VOLTAGE
E. NONE OF THE ABOVE

6. A VIDEO AMPLIFIER'S FREQUENCY RESPONSE IS EXTENDED:

A. IF THE PLATE TO CATHODE CAPACITY IS INCREASED
B. IF THE PLATE LOAD RESISTOR IS INCREASED
oK [✓ C.] IF THE PLATE LOAD RESISTOR IS DECREASED
D. IF THE BIAS IS ADJUSTED TO A VALUE THAT RESULTS IN MAXIMUM GAIN
E. NONE OF THE ABOVE

7. WHICH OF THE FOLLOWING SHORTED LINES OFFERS THE HIGHEST IMPEDANCE TO A GIVEN FREQUENCY AT THE OPEN END:

A. 1/8 WAVE
ok [✓ B.] 1/4 WAVE
C. 3/8 WAVE
D. 1/2 WAVE
E. NONE OF THE ABOVE

8. STANDING WAVES ON A TRANSMISSION LINE WILL NOT EXIST IF:

A. THE LINE IS SHORTED AT SOME ODD QUARTER WAVE FROM SOURCE
ok [✓ B.] THE LINE IS TERMINATED IN ITS CHARACTERISTIC IMPEDANCE
C. THE LINE IS TERMINATED WITH A 72 OHM RESISTOR
D. THE LINE TERMINATED WITH A SHORT CIRCUIT
E. NONE OF THE ABOVE

9. A SYNCHRONOUS MOTOR'S SPEED:

A. CAN BE CONTROLLED WITH ARMATURE VOLTAGE
[✓ B.] / CAN BE CONTROLLED WITH FIELD EXCITIATION CONTROL
C.✓ IS DETERMINED BY FREQUENCY OF SUPPLY LINE
D. VARIES WITH LINE VOLTAGE
E. NONE OF ABOVE

10. A THREE PHASE MOTOR:

A.✓ CAN BE REVERSED BY INTERCHANGING ANY TWO INPUT LEADS
B. CANNOT BE REVERSED
C. CAN BE CONTROLLED IN SPEED BY VARYING VOLTAGE ON ONE LEG OF SUPPLY
D. WILL NOT CHANGE POWER FACTOR OF LINE
E. NONE OF ABOVE

11. A DC SHUNT MOTOR WILL NOT WORK SATISFACTORILY ON AC BECAUSE:

[✓ A.] / THERE ARE NO SLIP RINGS
B.✓ FIELD IMPEDANCE IS TOO HIGH
C. THE ARMATURE CURRENT IS TOO HIGH ON AC
D. THE MOTOR WILL RUN IN WRONG DIRECTION

12. ONE SIDE OF POWER LINES ARE GROUNDED BECAUSE:

ok [✓ A.] OF SAFETY REASONS
B. ALL POWER SOURCES MUST HAVE A GROUNDED RETURN IN ORDER TO FUNCTION
C. IT ELIMINATES ONE FUSE
D. BETTER REGULATION IS OBTAINED IN THIS WAY
E. NONE OF ABOVE

13. POOR POWER FACTOR IN AC SUPPLY LINE CAN BE CORRECTED BY:

A. REVERSING LEADS
B. USING ISOLATION TRANSFORMERS
[✓ C.] ADDING CAPACITY ACROSS LINE
D. OPERATING ALL MOTORS ON 3 PHASE
E. NONE OF ABOVE

14. RESONANCE OF A PARALLEL AC CIRCUIT IS OBTAINED:

[✓ A.] AT THE FREQUENCY FOR WHICH THE IMPEDANCE IS MAXIMUM ✓
B. AT THE FREQUENCY FOR WHICH THE REACTANCE IS MAXIMUM ✓
C. AT THE FREQUENCY FOR WHICH THE POWER FACTOR IS ZERO ✓
D. AT THE FREQUENCY FOR WHICH THE POWER ABSORBED IS MAXIMUM ✓ FOR THE GIVEN IMPRESSED VOLTAGE.
E. NONE OF ABOVE

15. OHM'S LAW IS:

A. $E = \frac{1^2}{R}$

B. $P = 1R$

[✓ C.] $R = \frac{E}{1}$

D. $1 = ER$

E. NONE OF ABOVE

16. FOUR ONE MICROFARAD CAPACITORS ARE CONNECTED IN SERIES. THE RESULTANT CAPACITY IS APPROXIMATELY:

A. 4 MICROFARADS
B. 2 MICROFARADS
C. 1/2 MICROFARAD
[✓ D.] 1/4 MICROFARAD
E. NONE OF ABOVE

17. A RESISTOR OF 4 OHMS IS CONNECTED ACROSS A 6V BATTERY. THE POWER DISSIPATED IS:

$\frac{E^2}{R} = \frac{36}{4} = 9$

A. 6 WATTS
[✓ B.] 9 WATTS
C. 18 WATTS
D. 24 WATTS
E. NONE OF ABOVE

18. A CATHODE FOLLOWER:

[✓ A.] IS A CIRCUIT TO SUPPLY A LOW IMPEDANCE LOAD FROM A HIGH IMPEDANCE SOURCE

B. IS A TYPE OF HIGH GAIN AMPLIFIER
C. IS A TYPE OF DETECTOR
D. HAS A VOLTAGE GAIN OF MORE THAN UNITY
E. NONE OF ABOVE

19. A THREE OHM AND SIX OHM RESISTOR ARE CONNECTED IN PARALLEL. THE RESULTANT RESISTANCE IS:

$\frac{3 \times 6}{3+6} = \frac{18}{9} = 2$

A. 9 OHMS
B. 6 OHMS
[✓ C.] 2 OHMS
D. 1 ½ OHMS
E. NONE OF ABOVE

20. A DEVIATION OF 20 CYCLES AT 1 MEGACYCLE IS EQUIVALENT TO:

$\frac{20}{1000000}$

A. .05%
B. .02%
[✓ C.] .002%
D. 20%
E. NONE OF ABOVE

21. IF THE VOLTAGE ON THE SECOND ANODE OF A CATHODE RAY TUBE IS DECREASED:

A. DEFLECTION SENSITIVITY (INCHES/VOLT) IS DECREASED.
B. THE SPOT BECOMES SMALLER
[✓ C.] THE INTENSITY ONLY IS CHANGED
D. ✓ DEFLECTION SENSITIVITY IS INCREASED
E. NONE OF ABOVE

22. A MULTIVIBRATOR:

[✓ A.] IS AN OSCILLATOR THAT CAN BE TRIGGERED TO OPERATE AT A LOWER FREQUENCY THAN ITS FREE RUNNING FREQUENCY
B. ✓ IS AN OSCILLATOR THAT CAN BE TRIGGERED TO OPERATE AT A HIGHER FREQUENCY THAN ITS FREE RUNNING FREQUENCY

C. IS AN OSCILLATOR THAT CANNOT BE TRIGGERED TO CHANGE FREQUENCY
D. IS A RELAY THAT OPERATES SIMILAR TO A BUZZER
E. NONE OF ABOVE

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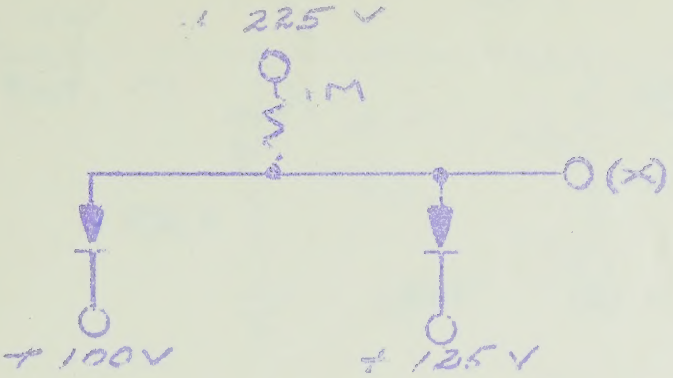
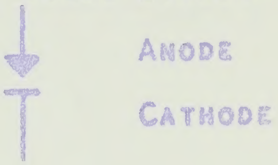
23.



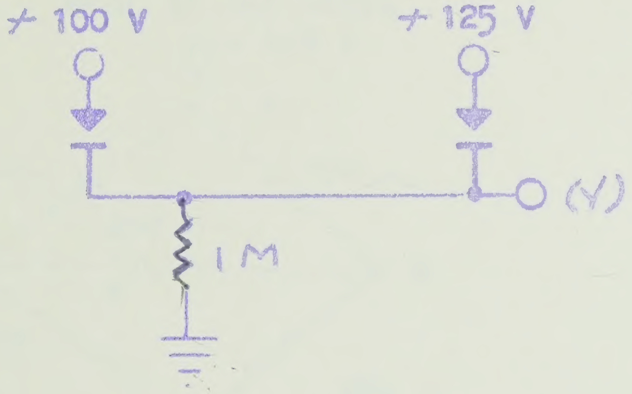
NOTE: DIODE SYMBOL



THE VOLTAGE AT (X) WILL BE APPROXIMATELY:

[✓ A.] 225 V
B. ✓ 100 V
C. 125 V
D. 112.5 V
E. NONE OF ABOVE.

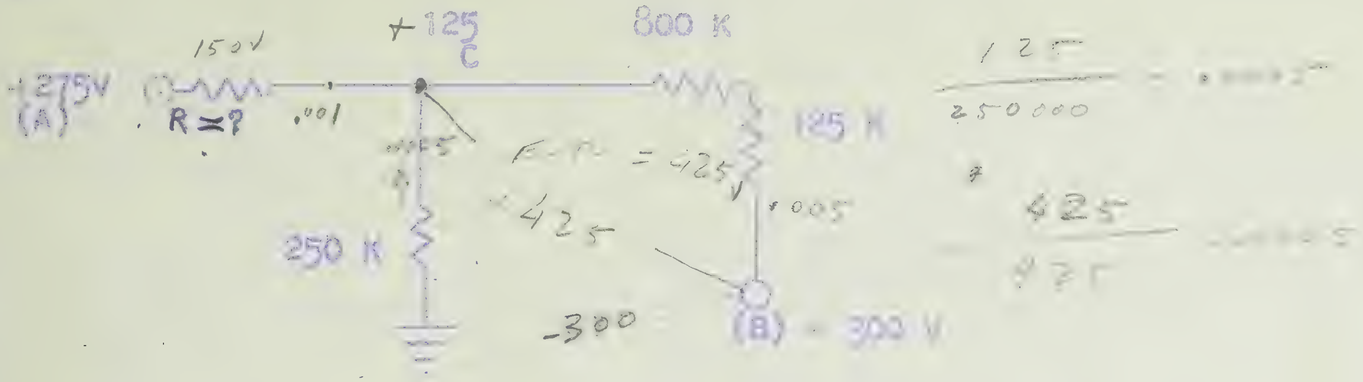
24.



THE VOLTAGE AT (Y) WILL BE APPROXIMATELY

A. 112.5 V
B. 100 V
C. ZERO
D. ✓ 125 V
[✓ E.] NONE OF ABOVE

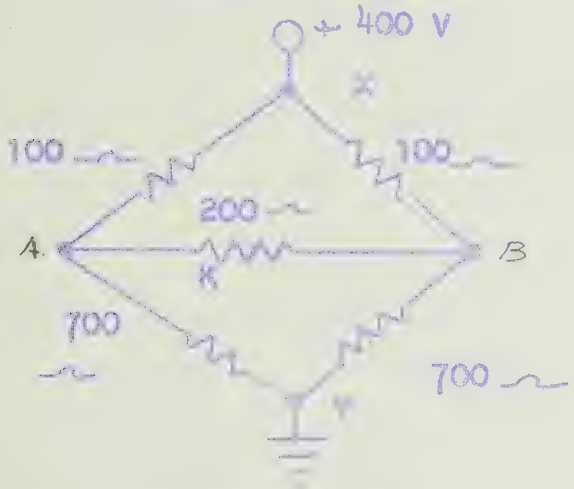
25.



IN THIS CIRCUIT, IF THE VOLTAGE MEASURED AT (C) IS 125 V, WHAT WILL BE THE RESISTANCE OF R? SHOW METHOD OF SOLUTION.

A. 200 K
B. 300 K
C. 100 K
[✓ D.] 150 K
E. NONE OF THE ABOVE

26.



IN THE ABOVE CIRCUIT, VOLTAGE AT POINT A IS:

A. 250
B. 375
[✓ C.] 350
D. 280
E. NONE OF THE ABOVE

27. CURRENT THROUGH K:

A. 1 AMP
B. 1.5 AMP
[✓ C.] 0 AMP
D. 0.5 AMP
E. NONE OF ABOVE.

28. Total resistance from X to Y:

(A) 300
(B) 350
[✓ (C) 400]
(D) 600
(E) None of above

29. Two 1 mfd - 400 V capacitors are connected in series. What is the total voltage that may be applied across the pair?

(A) 400 V
(B) 200 V
[✓ (C) 800 V]
(D) 300 V
(E) None of the above

30. If above capacitors are connected parallel?

(A) 300 V
(B) 200 V
[✓ (C) 400 V]
(D) 800 V
(E) None of above

31. To change Farenheit to Centigrade:

(A) $F = \frac{9}{5}C - 32$
[✓ (B) $F = \frac{9}{5}C + 32$]
(C) $F = \frac{5}{9}C - 32$
(D) $F = \frac{5}{9}C + 32$
(E) None of above

32. If a 110 V 400 Cycle power transformer is connected to a 110 V 60 Cycle Line:

[✓ (A) The transformer overheats]
(B) Nothing hapens
(C) The primary current decreases
(D) The secondary Current increases
(E) None of above

33. A ten kilocycle square wave will be amplified without causing distortion by:

(A) High Q amplifier
[✓ (B) A video amplifier]
(C) A low pass amplifier
(D) A regenerative amplifier
(E) None of above

34. ONE OF THE FOLLOWING OSCILLATORS USES NEGATIVE RESISTANCE FEEDBACK:

(A) HARTLEY
(B) COLPITTS
[✓ (C)] DYNATRON
(D) MULTIVIBRATOR
(E) NONE OF ABOVE

35. WHICH OF THE FOLLOWING WOULD BE THE MOST EFFECTIVE CURE FOR HARMONICS RADIATED FROM A TRANSMITTER ANTENNA:

(A) AN ADDITIONAL R. F. STAGE FOR THE RECEIVER.
[✓ (B)] A FARADAY SHIELD IN TRANSMITTER FINAL STAGE COUPLING TO ANTENNA
(C) BETTER FILTERING IN TRANSMITTER POWER SUPPLY
(D) BETTER CRYSTAL IN TRANSMITTER.
(E) NONE OF ABOVE